

Compilation:

After downloading the latest version (1.7.2), I ran the following commands in order, on the terminal.

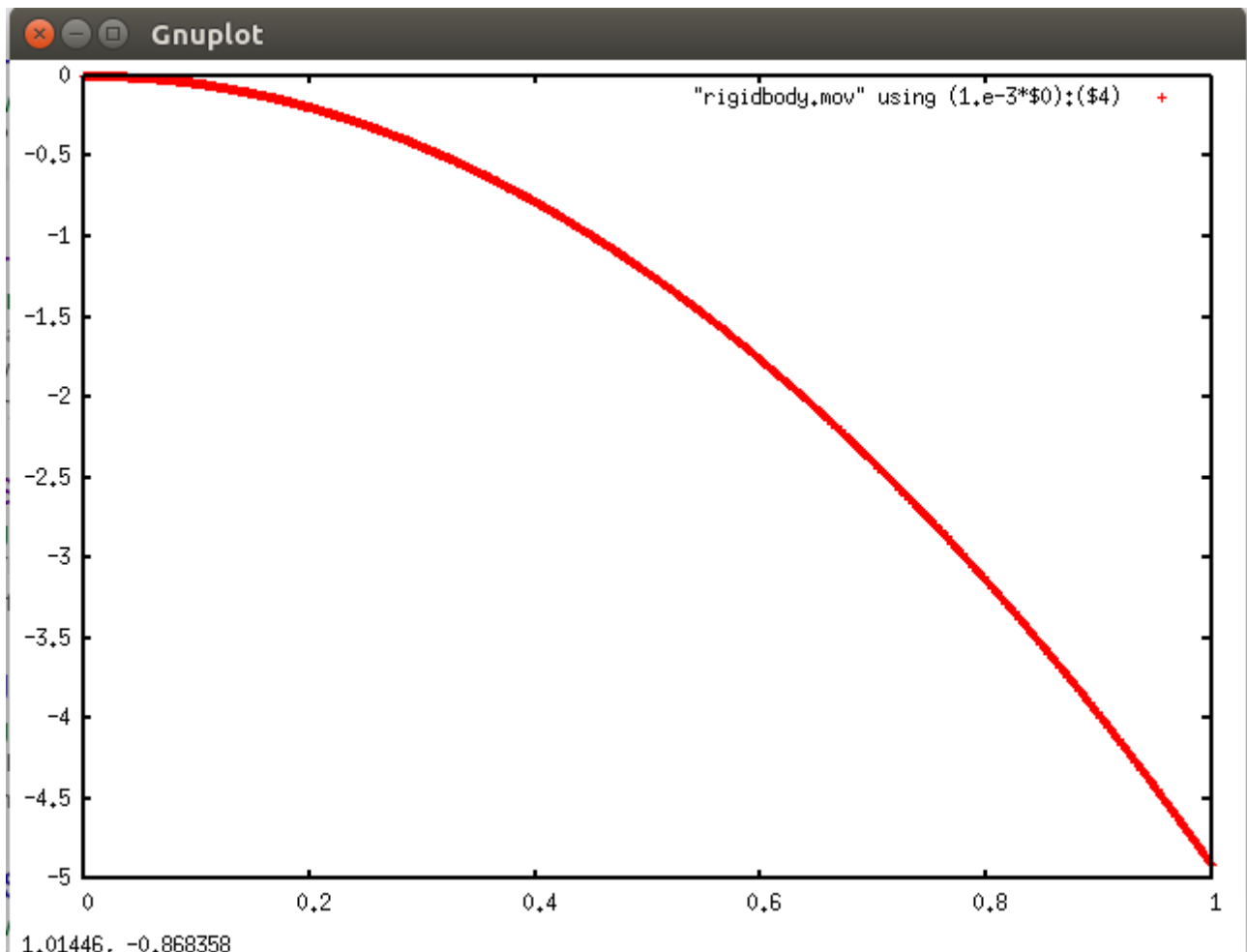
```
$ ./configure  
$ sudo make  
$ sudo make install
```

The only problem I faced was while running the ‘make’ command, where some of the files that the script wanted to access, required root permission. Running ‘make’ with sudo, overcame this problem, and the rest of the installation was smooth.

Example case: Rigid Body

I took the simplest case of a rigid body, and ran the input file following the example tutorial.

```
gnuplot> plot "rigidbody.mov" using (1.e-3*$0):($4)
```



Explanation:

The figure shows the movement of the body in the z-direction with time.

A constant force of -9.81 N is applied in the z direction to a body of mass 1 kg and the initial velocity in the z direction is 0 m/sec.

Since, the acceleration is constant, we can use the following equation to find the displacement s,

$$s = ut + 0.5at^2$$

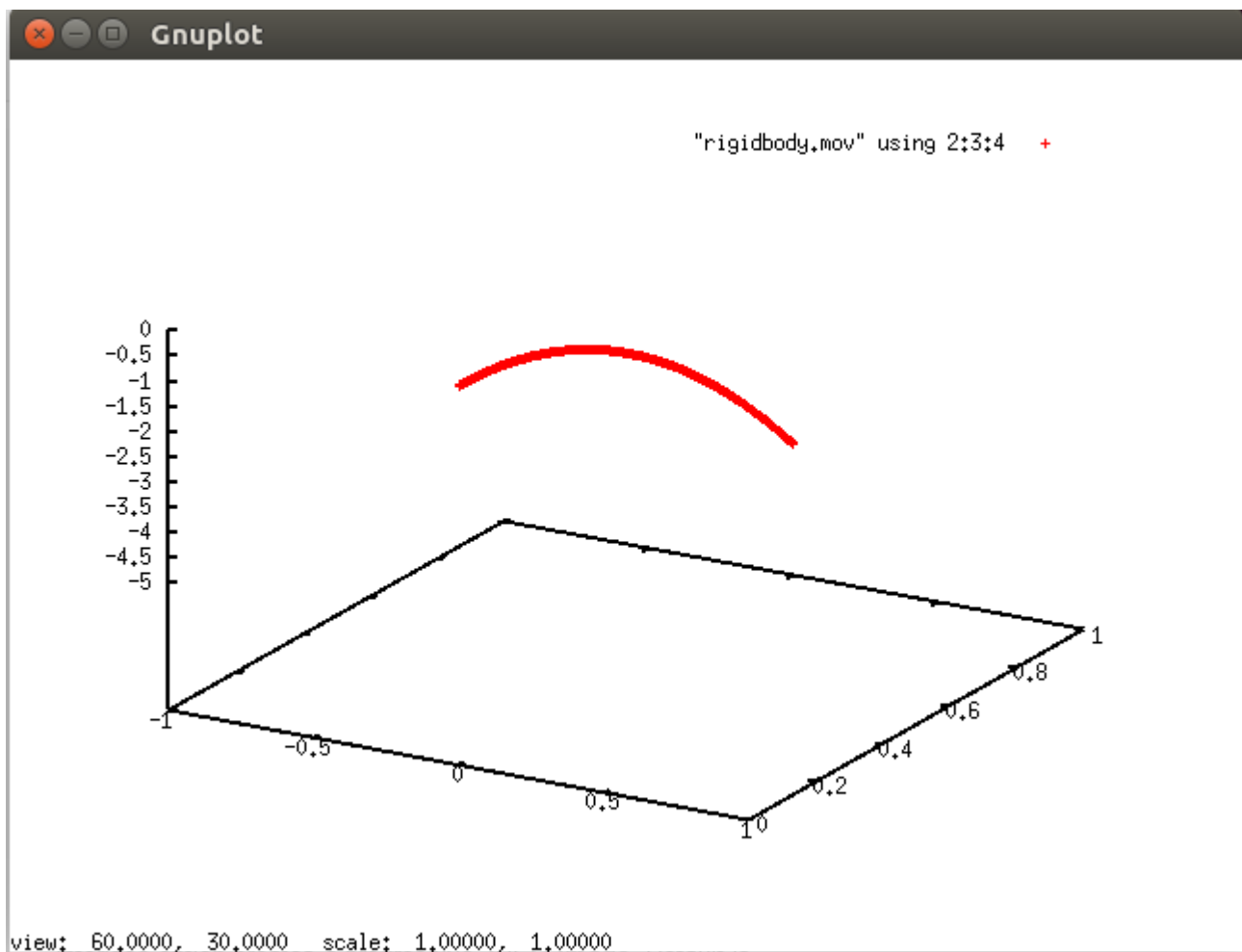
After time $t=1$ sec,

$$s = 0 + 0.5*(-9.81)*(1)^2$$

$$s = -4.905 \text{ m (as we can see towards the bottom right of the graph)}$$

Also, since the equation is quadratic between s and t, we expect and see a parabolic curve.

```
gnuplot> plot "rigidbody.mov" using 2:3:4
```



Explanation:

The figure shows the trajectory of the rigid body in 3-D.

Since, a constant force acts in the z-direction, the z-coordinate moves in a parabolic fashion, while the y-coordinate moves linearly since it has a constant velocity and no acceleration, (since no force is applied in the y-direction)

$$s_y = ut$$

Therefore, we see that the body moves only in two dimensions.

(No movement in the x-direction)

We can also plot force vs time, which will only be a point (constant with time), with a non zero z-coordinate and x and y coordinates as zero.